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<110> Human Genome Sciences, Inc.

<120> Albumin Fusion Proteins

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<140> 09/832,929

<141> 2001-04-12

<150> 60/229,358

<151> 2000-04-12

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<151> 2000-12-21

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<170> PatentIn Ver. 2.1

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with non-cohesive ends.

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gataaagatt cccaac

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with non-cohesive ends.

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1 5 10 15

Ile Ser Ala Asp Ala His Lys Ser
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ac 62

<210> 16
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gcc 63

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gaa aat ttc aaa gcc ttg gtg ttg att gcc ttt gct cag tat ctt cag	96
Glu Asn Phe Lys Ala Leu Val Leu Ile Ala Phe Ala Gln Tyr Leu Gln	
20 25 30	
cag tgt cca ttt gaa gat cat gta aaa tta gtg aat gaa gta act gaa	144
Gln Cys Pro Phe Glu Asp His Val Lys Leu Val Asn Glu Val Thr Glu	
35 40 45	
ttt gca aaa aca tgt gtt gct gat gag tca gct gaa aat tgt gac aaa	192
Phe Ala Lys Thr Cys Val Ala Asp Glu Ser Ala Glu Asn Cys Asp Lys	
50 55 60	
tca ctt cat acc ctt ttt gga gac aaa tta tgc aca gtt gca act ctt	240
Ser Leu His Thr Leu Phe Gly Asp Lys Leu Cys Thr Val Ala Thr Leu	
65 70 75 80	
cgt gaa acc tat ggt gaa atg gct gac tgc tgt gca aaa caa gaa cct	288
Arg Glu Thr Tyr Gly Glu Met Ala Asp Cys Cys Ala Lys Gln Glu Pro	
85 90 95	
gag aga aat gaa tgc ttc ttg caa cac aaa gat gac aac cca aac ctc	336
Glu Arg Asn Glu Cys Phe Leu Gln His Lys Asp Asp Asn Pro Asn Leu	
100 105 110	
ccc cga ttg gtg aga cca gag gtt gat gtg atg tgc act gct ttt cat	384
Pro Arg Leu Val Arg Pro Glu Val Asp Val Met Cys Thr Ala Phe His	
115 120 125	
gac aat gaa gag aca ttt ttg aaa aaa tac tta tat gaa att gcc aga	432
Asp Asn Glu Glu Thr Phe Leu Lys Lys Tyr Leu Tyr Glu Ile Ala Arg	
130 135 140	
aga cat cct tac ttt tat gcc ccg gaa ctc ctt ttc ttt gct aaa agg	480
Arg His Pro Tyr Phe Tyr Ala Pro Glu Leu Leu Phe Phe Ala Lys Arg	
145 150 155 160	
tat aaa gct gct ttt aca gaa tgt tgc caa gct gct gat aaa gct gcc	528
Tyr Lys Ala Ala Phe Thr Glu Cys Cys Gln Ala Ala Asp Lys Ala Ala	
165 170 175	

tgc ctg ttg cca aag ctc gat gaa ctt cgg gat gaa ggg aag gct tcg	576
Cys Leu Leu Pro Lys Leu Asp Glu Leu Arg Asp Glu Gly Lys Ala Ser	
180 185 190	
tct gcc aaa cag aga ctc aaa tgt gcc agt ctc caa aaa ttt gga gaa	624
Ser Ala Lys Gln Arg Leu Lys Cys Ala Ser Leu Gln Lys Phe Gly Glu	
195 200 205	
aga gct ttc aaa gca tgg gca gtg gct cgc ctg agc cag aga ttt ccc	672
Arg Ala Phe Lys Ala Trp Ala Val Ala Arg Leu Ser Gln Arg Phe Pro	
210 215 220	
aaa gct gag ttt gca gaa gtt tcc aag tta gtg aca gat ctt acc aaa	720
Lys Ala Glu Phe Ala Glu Val Ser Lys Leu Val Thr Asp Leu Thr Lys	
225 230 235 240	
gtc cac acg gaa tgc tgc cat gga gat ctg ctt gaa tgt gct gat gac	768
Val His Thr Glu Cys Cys His Gly Asp Leu Leu Glu Cys Ala Asp Asp	
245 250 255	
agg gcg gac ctt gcc aag tat atc tgt gaa aat cag gat tcg atc tcc	816
Arg Ala Asp Leu Ala Lys Tyr Ile Cys Glu Asn Gln Asp Ser Ile Ser	
260 265 270	
agt aaa ctg aag gaa tgc tgt gaa aaa cct ctg ttg gaa aaa tcc cac	864
Ser Lys Leu Lys Glu Cys Cys Glu Lys Pro Leu Leu Glu Lys Ser His	
275 280 285	
tgc att gcc gaa gtg gaa aat gat gag atg cct gct gac ttg cct tca	912
Cys Ile Ala Glu Val Glu Asn Asp Glu Met Pro Ala Asp Leu Pro Ser	
290 295 300	
tta gct gct gat ttt gtt gaa agt aag gat gtt tgc aaa aac tat gct	960
Leu Ala Ala Asp Phe Val Glu Ser Lys Asp Val Cys Lys Asn Tyr Ala	
305 310 315 320	
gag gca aag gat gtc ttc ctg ggc atg ttt ttg tat gaa tat gca aga	1008
Glu Ala Lys Asp Val Phe Leu Gly Met Phe Leu Tyr Glu Tyr Ala Arg	
325 330 335	
agg cat cct gat tac tct gtc gtg ctg ctg ctg aga ctt gcc aag aca	1056
Arg His Pro Asp Tyr Ser Val Val Leu Leu Leu Arg Leu Ala Lys Thr	
340 345 350	
tat gaa acc act cta gag aag tgc tgt gcc gct gca gat cct cat gaa	1104
Tyr Glu Thr Thr Leu Glu Lys Cys Cys Ala Ala Ala Asp Pro His Glu	
355 360 365	
tgc tat gcc aaa gtg ttc gat gaa ttt aaa cct ctt gtg gaa gag cct	1152
Cys Tyr Ala Lys Val Phe Asp Glu Phe Lys Pro Leu Val Glu Glu Pro	
370 375 380	

cag aat tta atc aaa caa aac tgt gag ctt ttt gag cag ctt gga gag	1200
Gln Asn Leu Ile Lys Gln Asn Cys Glu Leu Phe Glu Gln Leu Gly Glu	
385 390 395 400	
tac aaa ttc cag aat gcg cta tta gtt cgt tac acc aag aaa gta ccc	1248
Tyr Lys Phe Gln Asn Ala Leu Leu Val Arg Tyr Thr Lys Lys Val Pro	
405 410 415	
caa gtg tca act cca act ctt gta gag gtc tca aga aac cta gga aaa	1296
Gln Val Ser Thr Pro Thr Leu Val Glu Val Ser Arg Asn Leu Gly Lys	
420 425 430	
gtg ggc agc aaa tgt tgt aaa cat cct gaa gca aaa aga atg ccc tgt	1344
Val Gly Ser Lys Cys Cys Lys His Pro Glu Ala Lys Arg Met Pro Cys	
435 440 445	
gca gaa gac tat cta tcc gtg gtc ctg aac cag tta tgt gtg ttg cat	1392
Ala Glu Asp Tyr Leu Ser Val Val Leu Asn Gln Leu Cys Val Leu His	
450 455 460	
gag aaa acg cca gta agt gac aga gtc aca aaa tgc tgc aca gag tcc	1440
Glu Lys Thr Pro Val Ser Asp Arg Val Thr Lys Cys Cys Thr Glu Ser	
465 470 475 480	
ttg gtg aac agg cga cca tgc ttt tca gct ctg gaa gtc gat gaa aca	1488
Leu Val Asn Arg Arg Pro Cys Phe Ser Ala Leu Glu Val Asp Glu Thr	
485 490 495	
tac gtt ccc aaa gag ttt aat gct gaa aca ttc acc ttc cat gca gat	1536
Tyr Val Pro Lys Glu Phe Asn Ala Glu Thr Phe Thr Phe His Ala Asp	
500 505 510	
ata tgc aca ctt tct gag aag gag aga caa atc aag aaa caa act gca	1584
Ile Cys Thr Leu Ser Glu Lys Glu Arg Gln Ile Lys Lys Gln Thr Ala	
515 520 525	
ctt gtt gag ctt gtg aaa cac aag ccc aag gca aca aaa gag caa ctg	1632
Leu Val Glu Leu Val Lys His Lys Pro Lys Ala Thr Lys Glu Gln Leu	
530 535 540	
aaa gct gtt atg gat gat ttc gca gct ttt gta gag aag tgc tgc aag	1680
Lys Ala Val Met Asp Asp Phe Ala Ala Phe Val Glu Lys Cys Cys Lys	
545 550 555 560	
gct gac gat aag gag acc tgc ttt gcc gag gag ggt aaa aaa ctt gtt	1728
Ala Asp Asp Lys Glu Thr Cys Phe Ala Glu Glu Gly Lys Lys Leu Val	
565 570 575	
gct gca agt caa gct gcc tta ggc tta taacatctac atttaaaagc atctcag	1782
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 35 40 45
 Phe Ala Lys Thr Cys Val Ala Asp Glu Ser Ala Glu Asn Cys Asp Lys
 50 55 60
 Ser Leu His Thr Leu Phe Gly Asp Lys Leu Cys Thr Val Ala Thr Leu
 65 70 75 80
 Arg Glu Thr Tyr Gly Glu Met Ala Asp Cys Cys Ala Lys Gln Glu Pro
 85 90 95
 Glu Arg Asn Glu Cys Phe Leu Gln His Lys Asp Asp Asn Pro Asn Leu
 100 105 110
 Pro Arg Leu Val Arg Pro Glu Val Asp Val Met Cys Thr Ala Phe His
 115 120 125
 Asp Asn Glu Glu Thr Phe Leu Lys Lys Tyr Leu Tyr Glu Ile Ala Arg
 130 135 140
 Arg His Pro Tyr Phe Tyr Ala Pro Glu Leu Leu Phe Phe Ala Lys Arg
 145 150 155 160
 Tyr Lys Ala Ala Phe Thr Glu Cys Cys Gln Ala Ala Asp Lys Ala Ala
 165 170 175
 Cys Leu Leu Pro Lys Leu Asp Glu Leu Arg Asp Glu Gly Lys Ala Ser
 180 185 190
 Ser Ala Lys Gln Arg Leu Lys Cys Ala Ser Leu Gln Lys Phe Gly Glu
 195 200 205
 Arg Ala Phe Lys Ala Trp Ala Val Ala Arg Leu Ser Gln Arg Phe Pro
 210 215 220
 Lys Ala Glu Phe Ala Glu Val Ser Lys Leu Val Thr Asp Leu Thr Lys
 225 230 235 240

Val	His	Thr	Glu	Cys	Cys	His	Gly	Asp	Leu	Leu	Glu	Cys	Ala	Asp	Asp	
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Arg	Ala	Asp	Leu	Ala	Lys	Tyr	Ile	Cys	Glu	Asn	Gln	Asp	Ser	Ile	Ser	
			260					265					270			
Ser	Lys	Leu	Lys	Glu	Cys	Cys	Glu	Lys	Pro	Leu	Leu	Glu	Lys	Ser	His	
		275					280					285				
Cys	Ile	Ala	Glu	Val	Glu	Asn	Asp	Glu	Met	Pro	Ala	Asp	Leu	Pro	Ser	
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Leu	Ala	Ala	Asp	Phe	Val	Glu	Ser	Lys	Asp	Val	Cys	Lys	Asn	Tyr	Ala	
305					310					315					320	
Glu	Ala	Lys	Asp	Val	Phe	Leu	Gly	Met	Phe	Leu	Tyr	Glu	Tyr	Ala	Arg	
				325					330					335		
Arg	His	Pro	Asp	Tyr	Ser	Val	Val	Leu	Leu	Leu	Arg	Leu	Ala	Lys	Thr	
			340					345					350			
Tyr	Glu	Thr	Thr	Leu	Glu	Lys	Cys	Cys	Ala	Ala	Ala	Asp	Pro	His	Glu	
		355					360					365				
Cys	Tyr	Ala	Lys	Val	Phe	Asp	Glu	Phe	Lys	Pro	Leu	Val	Glu	Glu	Pro	
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Gln	Asn	Leu	Ile	Lys	Gln	Asn	Cys	Glu	Leu	Phe	Glu	Gln	Leu	Gly	Glu	
385					390					395					400	
Tyr	Lys	Phe	Gln	Asn	Ala	Leu	Leu	Val	Arg	Tyr	Thr	Lys	Lys	Val	Pro	
				405					410					415		
Gln	Val	Ser	Thr	Pro	Thr	Leu	Val	Glu	Val	Ser	Arg	Asn	Leu	Gly	Lys	
			420					425					430			
Val	Gly	Ser	Lys	Cys	Cys	Lys	His	Pro	Glu	Ala	Lys	Arg	Met	Pro	Cys	
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Ala	Glu	Asp	Tyr	Leu	Ser	Val	Val	Leu	Asn	Gln	Leu	Cys	Val	Leu	His	
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Glu	Lys	Thr	Pro	Val	Ser	Asp	Arg	Val	Thr	Lys	Cys	Cys	Thr	Glu	Ser	
465					470					475					480	
Leu	Val	Asn	Arg	Arg	Pro	Cys	Phe	Ser	Ala	Leu	Glu	Val	Asp	Glu	Thr	
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Tyr	Val	Pro	Lys	Glu	Phe	Asn	Ala	Glu	Thr	Phe	Thr	Phe	His	Ala	Asp	
			500					505					510			

Ile Cys Thr Leu Ser Glu Lys Glu Arg Gln Ile Lys Lys Gln Thr Ala
515 520 525

Leu Val Glu Leu Val Lys His Lys Pro Lys Ala Thr Lys Glu Gln Leu
530 535 540

Lys Ala Val Met Asp Asp Phe Ala Ala Phe Val Glu Lys Cys Cys Lys
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Ala Asp Asp Lys Glu Thr Cys Phe Ala Glu Glu Gly Lys Lys Leu Val
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Ala Ala Ser Gln Ala Ala Leu Gly Leu
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site in pPPC0006

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site in pPPC0006

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sites in pPPC0007

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<223> forward primer useful for generation of albumin fusion protein in which the albumin moiety is N-terminal of the Therapeutic Protein

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fusion protein in which the albumin moiety is c-terminal of
the Therapeutic Protein

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<223> n equals a,t,g, or c

<220>
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<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (45)
<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

<220>
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<222> (47)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (48)
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<220>
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<223> n equals a,t,g, or c

<220>
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<223> n equals a,t,g, or c

<220>
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<222> (51)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (52)
<223> n equals a,t,g, or c

<400> 28
ctttaaatcg atgagcaacc tcactcttgt gtgcatcnnn nnnnnnnnnn nn

52

<210> 29
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<221> signal
<223> signal peptide of natural human serum albumin protein

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<400> 29
Met Lys Trp Val Ser Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala
  1             5             10             15

Tyr Ser Arg Ser Leu Asp Lys Arg
      20

<210> 30
<211> 114
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> forward primer useful for generation of PC4:HSA
albumin fusion VECTOR

<220>
<221> misc_feature
<222> (5)..(10)
<223> BamHI restriction site

<220>
<221> misc_feature
<222> (11)..(16)
<223> Hind III restriction site

<220>
<221> misc_feature
<222> (17)..(27)
<223> Kozak sequence

<220>
<221> misc_feature
<222> (25)..(97)
<223> cds natural signal sequence of human serum albumin

<220>
<221> misc_feature
<222> (75)..(81)
<223> XhoI restriction site

<220>
<221> misc_feature
<222> (98)..(114)
<223> cds first six amino acids of human serum albumin

<400> 30
tcagggatcc aagcttccgc caccatgaag tgggtaacct ttatttcctc tctttttctc 60

tttagctcgg cttactcgag ggggtgtgttt cgtcgagatg cacacaagag tgag      114

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<210> 31
 <211> 43
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> primer_bind
 <223> reverse primer useful for generation of
 PC4:HSA albumin fusion VECTOR

<220>
 <221> misc_feature
 <222> (6)..(11)
 <223> Asp718 restriction site

<220>
 <221> misc_feature
 <222> (12)..(17)
 <223> EcoRI restriction site

<220>
 <221> misc_feature
 <222> (15)..(17)
 <223> reverse complement of stop codon

<220>
 <221> misc_feature
 <222> (18)..(25)
 <223> AscI restriction site

<220>
 <221> misc_feature
 <222> (18)..(43)
 <223> reverse complement of DNA sequence encoding last 9 amino acids

<400> 31
 gcagcgggtac cgaattcggc ggcgccttata agcctaaggc agc 43

<210> 32
 <211> 46
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> primer_bind
 <223> forward primer useful for inserting Therapeutic
 protein into pC4:HSA vector

<220>
 <221> misc feature
 <222> (29)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (30)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (31)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (32)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (33)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (34)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (35)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (36)

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<220>

<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (38)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (39)

<223> n equals a,t,g, or c

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<220>
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<221> misc feature
<222> (42)
<223> n equals a,t,g, or c

<220>
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<222> (43)
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<220>
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<222> (44)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (45)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (46)
<223> n equals a,t,g, or c

<400> 32
ccgccgctcg aggggtgtgt ttcgtcgann nnnnnnnnnn nnnnnn

46

<210> 33
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> reverse primer useful for inserting Therapeutic
protein into pC4:HSA vector

<220>
<221> misc feature
<222> (38)
<223> n equals a,t,g, or c

<220>
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<222> (39)
<223> n equals a,t,g, or c

<220>
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<222> (40)
<223> n equals a,t,g, or c

<220>
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<222> (41)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (42)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (43)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (44)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (45)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (46)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (47)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (48)
<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (49)
<223> n equals a,t,g, or c

<220>
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<222> (50)
<223> n equals a,t,g, or c

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<222> (51)
<223> n equals a,t,g, or c

<220>
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<222> (52)
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<220>
<221> misc feature
<222> (53)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (54)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (55)
<223> n equals a,t,g, or c

<400> 33
agtcccatcg atgagcaacc tcactcttgt gtgcatcnnn nnnnnnnnnn nnnnn 55

<210> 34
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> signal
<223> Stanniocalcin signal peptide

<400> 34
Met Leu Gln Asn Ser Ala Val Leu Leu Leu Leu Val Ile Ser Ala Ser
1 5 10 15

Ala

<210> 35
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<221> signal
<223> Synthetic signal peptide

<400> 35
Met Pro Thr Trp Ala Trp Trp Leu Phe Leu Val Leu Leu Leu Ala Leu
1 5 10 15

Trp Ala Pro Ala Arg Gly
20

<210> 36
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> Degenerate VH forward primer useful for
amplifying human VH domains

<400> 36
caggtgcagc tgggtgcagtc tgg 23

<210> 37
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> Degenerate VH forward primer useful for
amplifying human VH domains

<400> 37
caggtcaact taagggagtc tgg 23

<210> 38
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<223> Degenerate VH forward primer useful for
amplifying human VH domains

<400> 38
gaggtgcagc tggaggagtc tgg 23

<210> 39
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate VH forward primer useful for
amplifying human VH domains

<400> 39
caggtgcagc tgcaggagtc ggg 23

<210> 40
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate VH forward primer useful for
amplifying human VH domains

<400> 40
gaggtgcagc tgttgagtc tgc 23

<210> 41
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate VH forward primer useful for
amplifying human VH domains

<400> 41
caggtacagc tgcagagtc agg 23

<210> 42
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind

<223>Degenerate JH reverse primer useful for
amplifying human VH domains

<400> 42
tgaggagacg gtgaccaggg tgcc 24

<210> 43
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate JH reverse primer useful for
amplifying human VH domains

<400> 43
tgaagagacg gtgaccattg tccc 24

<210> 44
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate JH reverse primer useful for
amplifying human VH domains

<400> 44
tgaggagacg gtgaccaggg ttcc 24

<210> 45
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate JH reverse primer useful for
amplifying human VH domains

<400> 45
tgaggagacg gtgaccgtgg tccc 24

<210> 46
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind

<223>Degenerate Vkappa forward primer useful for
amplifying human VL domains

<400> 46

gacatccaga tgacccagtc tcc

23

<210> 47

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<221>primer_bind

<223>Degenerate Vkappa forward primer useful for
amplifying human VL domains

<400> 47

gatgttgtga tgactcagtc tcc

23

<210> 48

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<221>primer_bind

<223>Degenerate Vkappa forward primer useful for
amplifying human VL domains

<400> 48

gatattgtga tgactcagtc tcc

23

<210> 49

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<221>primer_bind

<223>Degenerate Vkappa forward primer useful for
amplifying human VL domains

<400> 49

gaaattgtgt tgacgcagtc tcc

23

<210> 50

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<221>primer_bind

<223>Degenerate Vkappa forward primer useful for
amplifying human VL domains

<400> 50
gacatcgtga tgaccagtc tcc 23

<210> 51
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Vkappa forward primer useful for
amplifying human VL domains

<400> 51
gaaacgacac tcacgcagtc tcc 23

<210> 52
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Vkappa forward primer useful for
amplifying human VL domains

<400> 52
gaaattgtgc tgactcagtc tcc 23

<210> 53
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Vlambd forward primer useful for
amplifying human VL domains

<400> 53
cagtctgtgt tgacgcagcc gcc 23

<210> 54
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind

<223>Degenerate Vlambda forward primer useful for
amplifying human VL domains

<400> 54
cagtctgccc tgactcagcc tgc 23

<210> 55
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Vlambda forward primer useful for
amplifying human VL domains

<400> 55
tcctatgtgc tgactcagcc acc 23

<210> 56
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Vlambda forward primer useful for
amplifying human VL domains

<400> 56
tcttctgagc tgactcagga ccc 23

<210> 57
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Vlambda forward primer useful for
amplifying human VL domains

<400> 57
cacgttatac tgactcaacc gcc 23

<210> 58
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
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<223>Degenerate Vlambda forward primer useful for
amplifying human VL domains

<400> 58
caggctgtgc tcactcagcc gtc 23

<210> 59
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Vlambda forward primer useful for
amplifying human VL domains

<400> 59
aatTTtatgc tgactcagcc cca 23

<210> 60
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Jkappa reverse primer useful for
amplifying human VL domains

<400> 60
acgtttgatt tccaccttgg tccc 24

<210> 61
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
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<223>Degenerate Jkappa reverse primer useful for
amplifying human VL domains

<400> 61
acgtttgatc tccagcttgg tccc 24

<210> 62
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind

<223>Degenerate Jkappa reverse primer useful for
amplifying human VL domains

<400> 62
acgtttgata tccacttttg tccc 24

<210> 63
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Jkappa reverse primer useful for
amplifying human VL domains

<400> 63
acgtttgatc tccaccttg tccc 24

<210> 64
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Jkappa reverse primer useful for
amplifying human VL domains

<400> 64
acgtttaatc tccagtcgtg tccc 24

<210> 65
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Jlambda reverse primer useful for
amplifying human VL domains

<400> 65
cagtctgtgt tgacgcagcc gcc 23

<210> 66
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind

<223>Degenerate Jlambda reverse primer useful for
amplifying human VL domains

<400> 66
cagtctgccc tgactcagcc tgc 23

<210> 67
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Jlambda reverse primer useful for
amplifying human VL domains

<400> 67
tcctatgtgc tgactcagcc acc 23

<210> 68
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Jlambda reverse primer useful for
amplifying human VL domains

<400> 68
tcttctgagc tgactcagga ccc 23

<210> 69
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Jlambda reverse primer useful for
amplifying human VL domains

<400> 69
cacgttatac tgactcaacc gcc 23

<210> 70
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind

<223>Degenerate Jlambda reverse primer useful for
amplifying human VL domains

<400> 70
caggctgtgc tcactcagcc gtc 23

<210> 71
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221>primer_bind
<223>Degenerate Jlambda reverse primer useful for
amplifying human VL domains

<400> 71
aattttatgc tgactcagcc cca 23

<210> 72
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<221>turn
<223>Linker peptide that may be used to join VH
and VL domains in an scFv.

<400> 72
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

<210> 73
<211> 733
<212> DNA
<213> Homo sapiens

<400> 73
gggatccgga gcccaaattct tctgacaaaa ctcacacatg cccaccgtgc ccagcacctg
60

aattcgaggg tgcaccgtca gtcttcctct tcccccaaaa acccaaggac accctcatga
120

tctcccggaac tcctgaggtc acatgcgtgg tgggtggacgt aagccacgaa gaccctgagg
180

tcaagttcaa ctggtacgtg gacggcgtgg aggtgcataa tgccaagaca aagccgcggg
240

aggagcagta caacagcacg tacctgtgtg tcagcgtcct caccgtcctg caccaggact
300

ggctgaatgg caaggagtac aagtgcaagg tctccaacaa agccctccca acccccatcg
360

agaaaaccat ctccaaagcc aaagggcagc cccgagaacc acaggtgtac accctgcccc
420

catcccggga tgagctgacc aagaaccagg tcagcctgac ctgcctggtc aaaggcttct
480

atccaagcga catcgccgtg gagtgggaga gcaatgggca gccggagaac aactacaaga
540

ccacgcctcc cgtgctggac tccgacggct ccttcttcct ctacagcaag ctcaccgtgg
600

acaagagcag gtggcagcag gggaacgtct tctcatgctc cgtgatgcat gaggctctgc
660

acaaccacta cacgcagaag agcctctccc tgtctccggg taaatgagtg cgacggccgc
720

gactctagag gat
733

<210> 74
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<221> misc_structure
<223> membrane proximal motif of class 1 cytokine receptors

<220>
<221> misc_feature
<222> (3)
<223> Xaa equals any

<400> 74
Trp Ser Xaa Trp Ser
1 5

<210> 75
<211> 86
<212> DNA
<213> Artificial Sequence

<220>
 <221> primer_bind
 <223> forward primer useful for generation of a synthetic gamma
 activation site (GAS) containing promoter element

 <400> 75
 ggcctcgcag atttccccga aatctagatt tccccgaaat gatttccccg aaatgatttc
 60

 cccgaaatat ctgccatctc aattag
 86

 <210> 76
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <221> primer_bind
 <223> reverse primer useful for generation of a synthetic gamma
 activation site (GAS) containing promoter element

 <400> 76
 gcggcaagct ttttgcaaag cctaggc
 27

 <210> 77
 <211> 271
 <212> DNA
 <213> Artificial Sequence

 <220>
 <221> misc_feature
 <223> Synthetic GAS-SV40 promoter sequence

 <400> 77
 ctcgagattt ccccgaaatc tagatttccc cgaaatgatt tccccgaaat gatttccccg
 60

 aaatatctgc catctcaatt agtcagcaac catagtcccc cccctaactc cgcccatccc
 120

 gccctaact ccgcccagtt ccgcccattc tccgcccatt ggctgactaa ttttttttat
 180

 ttatgcagag gccgaggccg cctcggcctc tgagctattc cagaagtagt gaggaggctt
 240

 ttttggaggc ctaggctttt gcaaaaagct t
 271

<210> 78
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <221> primer_bind
 <223> primer useful for generation of a EGR/SEAP reporter construct

 <400> 78
 gcgctcgagg gatgacagcg atagaacccc gg
 32

 <210> 79
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <221> primer_bind
 <223> primer useful for generation of a EGR/SEAP reporter construct

 <400> 79
 gcgaagcttc gcgactcccc ggatccgcct c
 31

 <210> 80
 <211> 12
 <212> DNA
 <213> Artificial Sequence

 <220>
 <221> misc_binding
 <223> NF-KB binding site

 <400> 80
 ggggactttc cc
 12

 <210> 81
 <211> 73
 <212> DNA
 <213> Artificial Sequence

 <220>
 <221> primer_bind
 <223> forward primer useful for generation of a vector containing the
 NF-KB promoter element

 <400> 81
 gcggcctcga ggggactttc ccggggactt tccggggact ttccgggact ttccatcctg
 60

ccatctcaat tag

73

<210> 82

<211> 256

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<223> Synthetic NF-KB/SV40 promoter

<400> 82

ctcgagggga ctttcccggg gactttccgg ggactttccg ggactttcca tctgccatct
60

caattagtca gcaaccatag tcccgccctt aactccgccc atcccgcccc taactccgcc
120

cagttccgcc cattctccgc cccatggctg actaattttt tttatttatg cagaggccga
180

ggccgcctcg gcctctgagc tattccagaa gtagtgagga ggcttttttg gaggcctagg
240

cttttgcaaa aagctt

256